NORTH DAKOTA
DEPARTMENT of HEALTH

2014 West Nile Virus Summary

West Nile virus (WNV) is a mosquito-borne infection that can cause mild flu-like symptoms or severe encephalitis. WNV was first recognized in the U.S. in 1999 in the state of New York. In 2002, North Dakota had its first confirmed human cases of WNV, as well as detectable virus through laboratory testing in birds, horses and mosquitoes. Since 2002, there have been human cases of WNV in North Dakota every year.

The North Dakota Department of Health (NDDoH) monitors WNV activity in the state through surveillance activities that include reporting and testing sick horses and other animals, trapping and testing mosquitoes, reporting and testing dead birds, and monitoring illness in humans.

Dead bird surveillance is an indicator of transmission of WNV and can play a role in predicting human risk of infection. The North Dakota dead bird surveillance for WNV involves collecting reports of dead bird sightings and testing dead birds for WNV.

In North Dakota, approximately 100 mosquito traps are set up each summer, with at least one trap in each county. The traps are emptied each week and mosquitoes are sent to the North Dakota Department of Health's Division of Laboratory Services for counting and identification.

Visit www.ndhealth.gov/wnv to find additional information about WNV in North Dakota.

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On May 26, 2014, the North Dakota Department of Health (NDDoH) West Nile virus (WNV) surveillance program initiated its twelfth season of human arboviral surveillance. In 2014, the Division of Laboratory Services conducted WNV testing on 621 human samples. Twenty-three positive human cases were identified **(Figure 1)**.

Of the 23 reported cases, 12 (52%) met the case definition of West Nile encephalitis/ meningitis, with the remaining 11 (48%) cases classified as West Nile fever. Eight of the 23 cases were hospitalized. One case was fatal. In addition to the 23 cases, 1 asymptomatic North Dakota blood donor with WNV was reported to the NDDoH in 2014.

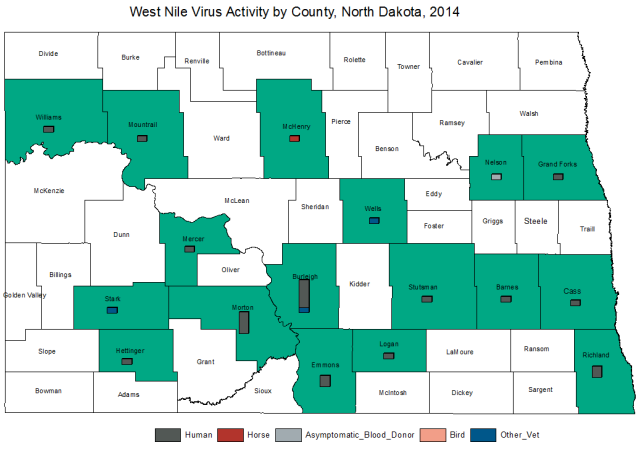
Table 1. Human WNV Cases by Age Group, North Dakota, 2014

Age Group	Cases
Age <10	0
Ages 10-19	1
Ages 20-29	4
Ages 30-39	2
Ages 40-49	4
Ages 50-59	5
Ages 60 and older	7

In 2014, 10 of the reported human WNV cases were female and 13 were male. Of the 23 reported cases, 12 (52%) were age 50 or older **(Table 1).** Although WNV can affect all age groups, those older than 50 have an increased risk of developing more severe disease.

The North Dakota Veterinary Diagnostic Laboratory (NDVDL) tested 21 horses for WNV infection. Of the 21 samples submitted, 1 (5%) tested positive for WNV from McHenry County. In addition, two moose, one from Burleigh County and one from Stark County, and one cow from Wells County tested positive for WNV. **(Figure 1).**

Figure 1. WNV Human and Non-human Activity by County, North Dakota, 2014.

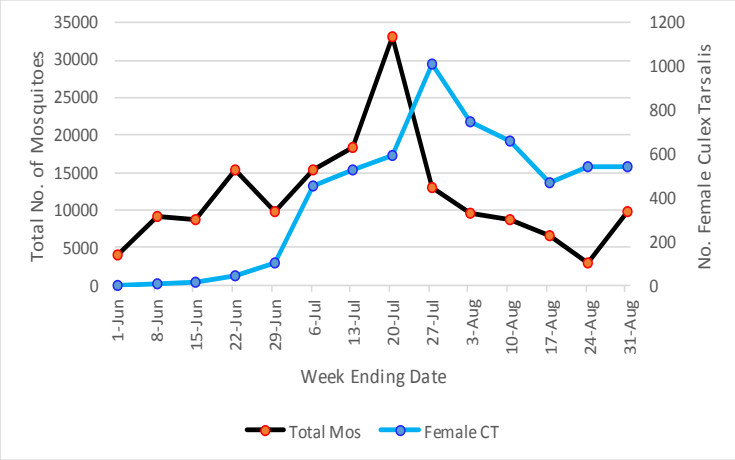


In 2014, dead bird collection focused on birds from the corvid and raptor families. The corvid family includes crows, blue jays, magpies and ravens. The raptor family includes birds of prey such as hawks, eagles, falcons and owls. Fourteen dead birds were collected and tested for WNV. Of those, 0 tested positive for WNV.

Statewide mosquito monitoring was conducted weekly from June through August using 92 New Jersey light traps stationed around the state. Female *Culex tarsalis* counts peaked the fourth week in July **(Figure 2).**

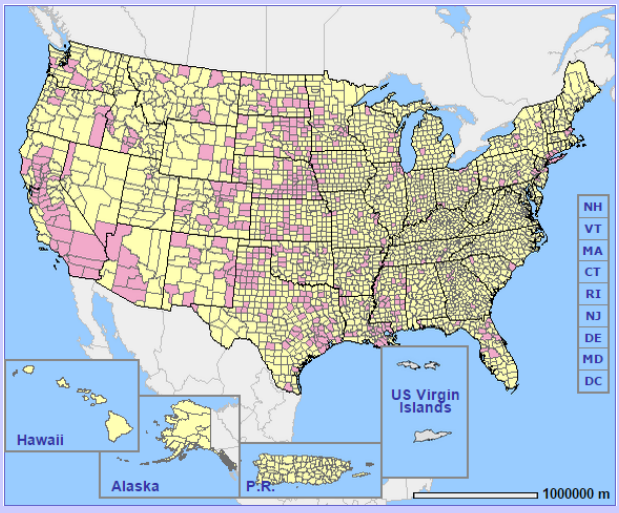
Culex tarsalis is the mosquito that transmits WNV and typically reaches its peak numbers at the end of July or beginning of August. Increases in the number of *Culex tarsalis* pose a higher risk for human WNV infection.

Figure 2. Total Number of Mosquitoes and Female *Culex tarsalis* Mosquitoes from surveillance traps, North Dakota, 2014.



West Nile Virus in the United States

Figure 3. WNV Activity Reported by County, United States, 2014.



In 2014, 2,123 human cases of WNV were reported in 47 states and the District of Columbia **(Figure 3).** Of the 2,123 reported cases, 1,283 (60%) met the case definition of West Nile encephalitis/ meningitis, with the remaining 840 (40%) cases classified as West Nile fever. Additionally, there were 85 WNV deaths reported from 22 states.

Table 2. Number of WNV Cases Per County, North Dakota, 2014

County	Human	Horse	Bird	Other Vet
Adams				
Barnes	1			
Benson				
Billings				
Bottineau				
Bowman				
Burke				
Burleigh	5			1
Cass	2			
Cavalier				
Dickey				
Divide				
Dunn				
Eddy				
Emmons	2			
Foster				
Golden Valley				
Grand Forks	1			
Grant				
Griggs				
Hettinger	1			
Kidder				
LaMoure				
Logan	1			
McHenry		1		
McIntosh				
McKenzie				
McLean				
Mercer	1			
Morton	4			
Mountrail	1			
Nelson				
Oliver				
Pembina				
Pierce				
Ramsey				
Ransom				
Renville				
Richland	2			
Rolette				
Sargent				
Sheridan				
Sioux				
Slope				
Stark				1
Steele				
Stutsman	1			
Towner				
Traill				
Walsh				
Ward				
Wells				1
Williams	1			